1/2 064 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INVESTIGATION OF THE OPTICAL INHOMOGENEITIES OF THE ACTIVE SUBSTANCE IN A CF SUB3 J -U-

AUTHOR-(04)-BELOUSOVA, I.M., DANILOV, O.B., SINITSYNA, I.A., SPIRIDONOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1481-1486

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--REFRACTIVE INDEX, INTERFEROMETER, SHOCK WAVE, LASER PUMPING, LASER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0017 STEP NO--UR/0056/70/058/005/1481/1486

CIRC ACCESSION NO--AP0127667

UNCLASSIFIED

2/2 064 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TIME DEPENDENCE OF THE REFRACTIVE INDEX DURING PHOTODISSOCIATION IS DEMONSTRATED BY THE INTERFEROMETER TECHNIQUE. IT IS SHOWN THAT A SHOCK WAVE APPEARS IN THE SUBSTANCE CONTAMINATED WITH THE PHOTODISSOCIATION PRODUCTS. THE WAVE IS DUE TO EVAPORATION (RESULTING FROM ABSORPTION OF THE PUMPING LIGHT) OF MOLECULAR IODINE DEPOSITED ON THE CUVETTE WALLS. IT IS SHOWN THAT THE TIME DELAY BETWEEN GENERATION AND THE PUMPING PULSE WEAKLY DEPENDS ON THE PRESSURE (AT HIGH VALUES OF THE LATTER). THIS EFFECT IS ASCRIBED TO INCREASE OF THE SPONTANEOUS EMISSION LINE WIDTH AND NATURALLY LEADS TO AN INCREASE OF THE GENERATION THRESHOLD.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ENDOMETRIOSIS OF THE LUNGS AND PLEURA -U-

AUTHOR--BELOUSOVA, I.M.

B

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 6, PP 67-71

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GYNECOLOGY, REPRODUCTIVE SYSTEM, PULMONARY DISEASE, RADIOGRAPHY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1779 STEP NO--UR/0531/70/000/006/0067/0071

CIRC ACCESSION NO--AP0129147

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129147

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES 22 PATIENTS WITH ENDOMETRIOSIS OF THE LUNGS AND PLEURA COMPILED FROM THE PERTINENT LITERATURE. FOR THIS DISEASE PATHOGNOMONIC IS THE DEVELOPMENT OF SPONTANEOUS HEMOTHORAX OR HEMOPTYSIS BEFOR OR DURING THE FIRST DAY OF MENSTRUATION. DURING THESE DAYS IN LOCALIZATION OF THE PROCESS IN THE PULMONARY TISSUE ROENTGENOLOGICALLY ONE COULD OBSERVE FOCAL CHANGES IN THE LUNGS WHICH DISAPPEAR IN SEVERAL DAYS. CLINICAL RECOVERY OCCURS AFTER RESECTION OF THE AFFECTED AREA OR AFTER TREATMENT FOR SUPPRESSION OF THE OVARIAN FUNCTION. FACILITY: OTDELENYE TORAKAL'NOY KHIRURGII 6-Y KLINICHESKOY BOL'NITSY, MOSKVA.

UNCLASSIFIED

USSR

B

BELOUSOVA, I. M., PANFILOV, V. G.

"Experimental Study of the Pulse Operation of a Sectional Laser Consisting of Heterogeneous Elements"

Minsk, Zhurnal Prikladnoy Spektroskopii, June 1970, pp 1012-1018

Abstract: A study was made of the operation of a sectional laser with a helium-neon master oscillator operating in a pulse mode on a wave length of 0.0621 μ and a neodymium glass tandem amplifier. Results of a study of the pulse oscillation of a master helium-neon laser with competing transitions with a common upper level are presented.

It was shown that the oscillation of a helium-neon laser on a wave length of 0.0621 μ can be obtained with a selective resonator and specified conditions for the pulse discharge with respect to composition of the mixture and intensity of the excitation. It was demonstrated that the maximum amplification for a tandem amplifier is attained with pumping levels and delay time of the signal of the master oscillator relative to the amplifier for

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USSR

BELOUSOVA, I. M., et al, Zhurnal Prikladnoy Spektroskopii, June 1970, pp 1012-1018

which the peak power output of the neodymium glass operating in the oscillation mode is a maximum. The maximum amplification was 6 db for KGSS-7 glass, ℓ = 80 mm with pumping of 432 joules. The angular divergence of the sectional laser was 8-10 minutes of arc, corresponding closely to the angular divergence of the master oscillator.

The article includes 5 illustrations. There are 13 references.

Originally submitted for publication 7 April 1969. Revised and resubmitted 10 December 1969.

2/2

USSR

UDC 621.372.822:621.372.832

BELOUSOVA, L. I.

"Problem of Spatial Beating in Rectangular Wave Guides Coupled by Transverse Slots"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 32-34 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B151)

Translation: The wavelength of spatial beats is calculated as a function of frequency for various slot widths. There is 1 illustration and a 3-entry bibliography.

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USSR

UDC 621.372.822

BELOUSOVA, L. I., ZLUNITSYNA, V. N.

"Slot Wave in a Rectangular Wave Guide with a Longitudinal Slot"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 34-38 (RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B101)

Translation: The basic characteristics of a slot wave are found as a function of the geometric parameters of the structure and frequency. There are 3 illustrations and a 3-entry bibliography.

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UDC 547.785.5:541.67:543.422

SHOSTAKOVSKIY, M. F., GLAZKOVA, N. P., DOMNINA, YE. S., BELOUSOVA, L. V., and SKVORTSOVA, G. G., Irkutsk Institute of Organic Chemistry, Siberian Branch of the Acad. Sc., USSR

"Reaction of N-Vinylimidazoles with Alkyl Halides"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 7, Jul 71, pp 958-960

Abstract: Conditions were studied for the reaction of N-vinylimidazole and N-vinylbenzimidazole with methyl iodide, ethyl, isopropyl, and butyl iodide and bromide, and with methylene chloride. The reaction occurs without a solvent, with a 2-3 fold excess of alkyl halide at reflux temperature, leading to the formation of quaternary salts. It was established that N-vinylimidazole is more reactive toward alkyl halides than N-vinylbenzimidazole, probably because of its higher basicity. Alkyl iodides react faster than alkyl bromides; alkyl chlorides are completely unreactive. Using quantum mechanical calculations it was shown that most of the π-electron charge was localized at the "pyridine" nitrogen atom.

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Acc. Nr.: AP0029815

Ref. Code: UR 047

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp69-71

STATE OF THE PANCREAS IN LIVER CIRRHOSIS

Z. A. Bondar, S. A. Tuzhilin, V. M. Makhov, N. D. Belousova and A. I. Saluenya (Moscow)

In 80 patients with liver cirrhosis examinations revealed a reduction of the pancreatic secretory function during secretin and pancreasimine stimulation. A study with labeled lipids revealed steatorrhoea. During the active phase of liver cirrhosis exacerbation of the pancreatic process was found. Examination of 29 autopsy cases of liver cirrhosis showed in all instances different changes in the pancreas — from periductular and inter- and interalobular fibrosis to phenomena of necrosis and even hemorrhages in the parenchyma of the gland and adipose tissue.

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REEL/FRAME
19681501

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200320015-6"

Acc. Nr: AP0048290 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R0472

94015v Heterogeneity of deformation and texture during the rolling of crystals. Belousova, N. S.; Borodkina, M. M.; Leskov, B. A.; Matorin, V. I. (USSR). *Fiz. Khim. Obrab. Mater.* 1970, (1), 133-9 (Russ). Flat specimens were cut from a Fe + 45% Ni single crystal obtained by the Czochralski method. In cold-rolling, crystals with a (110)[1$\bar{1}$2] orientation remain stable up to 91% deformation. The surface layer exhibits a small deviation from an ideal orientation. Scattering is small. The (110)[1$\bar{1}$0] orientation is unstable. It passes, in rolling, into an (112)[$\bar{1}$11] + (112)[11$\bar{1}$] orientation with a high scattering and a high heterogeneity in depth. GBJR

E13

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REEL/FRAME 19792012

18

Biology

50 JPRS 54539

23 NOV 71

UDC: 611.127+616.127]-018.63

BELOUSOVA, T.A.

ULTRASTRUCTURE OF INTERCALATED DISKS UNDER NORMAL AND PATHOLOGICAL CONDITIONS

[Article by T.A. Belousova, Institute of Human Morphology, USSR Academy of Medical Sciences, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 10, 1971, pp 44-48]

At the present time the ultrastructure of intercalated disks has been well investigated. It has been established that they are derivatives of the sarcolemmar cytoplasmic membrane (Moore and Ruscai Battig and Low, and others) and that it consists of two three-layer elementary membranes forming various connective complexes along their course: zonulae occludentes, maculae et zonulae adherent (Sjostrand et al., 1958; Stenger and Spiro; Sommer and Johnson, 1968, 1969, 1970, and others). According to a popular view, the zonulae occludentes are areas of low electrical resistance and they transmit impulses from one myocardial cell to another (Weidmann; Yamasaki Komuro; Melax and Leeson, and others). The intercalated disks have the appearance of a zigzag line traversed by myofibrils only at the level of their Z lines (P.Ya. Mul'diyarov; D.S. Sarkisov and B.V. Veyuris; Bahr and Jennings; Spiro and Hagopian; Melax and Leeson, and others). According to the data of Hitte, there are no intercalated disks at the early stages of development of the myocardium. However, Melax and Leeson, who investigated the ultrastructure of these elements in rat embryos, in neonate, young and adult animals, established that formation of intercalated disks begins in 11-day-old embryos and progresses concurrently with formation of the myofibrillar system. As the embryo matures there are more intercalated disks and their ultrastructure becomes more complex reaching the adult animal level at birth. Spiro and Hagopian also found numerous maculae et zonulae adherentes on the surfaces of embryonic myocardial cells, and they assumed that these elements are the source of formation of the Z lines of myofibrils. Rhodin, Del Missier and Reid (1961) discovered an exceedingly large number of desmosomes in the fibers of the bull calf's cardiac conduction system. The presence in the myocardium of areas of cloudy adhering plasma membranes in the form of intercalated disks, some parts of which constitute contacts with low electrical resistance result in that the myocardium, which has a cellular construction, functions like a syncytium (Johnson and Sommer, and others). There is sparse information about changes in ultrastructure of intercalated disks under experimental and pathological conditions. Thus, we know of the data on dilatation of the space between intercalated disk membranes in the presence of hypoxia (V.A. Khakhlanov; B. Zhaparov; Poche and Ohm). The hypothesis has been expounded that this phenomenon

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UDC 621.315.592

ALFEROV, ZH. I., ANDREYEV, V. M., BELOUSOVA, T. YA., BORODULIN, V. I., GORBYLEV, V. A., PAK, G. T., PETROV, A. I., PORTNOY, YE. L., CHERNOUSOV, N. P., SHVEYKIN, V. I., YASHCHUMOV, I. V.

"Effective Injection Heterolasers Operating in the Wavelength Band of 7,400-9,000 Å"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

Abstract: Results are presented from a study of the characteristics of effective heterolasers radiating in the wavelength band of 7,400-9,000 Å at room temperature. The n-$Al_xGa_{1-x}As$-p-$Al_yGa_{1-y}As$-p^+-$Al_xGa_{1-x}As$ heterojunctions were obtained by epitaxial growth from GaAs-AlAs solutions. All the investigated diodes had a Fabry-Perot resonator. The threshold current density, the external differential quantum efficiency and the radiation power per pulse at 300°K are tabulated for various models of the lasers. Graphs are presented showing the mean values of the threshold current density and the external differential quantum efficiency as functions of the emission quantum energy and the temperature dependence of the external differential quantum efficiency. The threshold current density increases exponentially with an increase in temperature according to the known law [V. I. Leskovich, et al., FTP, No 1, 1440, 1967]. Up to

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200320015-6"

USSR

ALFEROV, ZH. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

a temperature of 250° K, the external differential quantum efficiency does not vary, in practice, but then it decreases with temperature. The data demonstrate the possibility of obtaining generation in the continuous mode at 300°K up to 7,700 Å.

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1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--OPERATION OF MIXED ACTION FILTERS -U-

AUTHOR-(03)-SHVETSOVA, V.P., TISHCHENKO, N.D., BELOUSOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--ELEK. STA. 1970, 41(3), 22-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, FILTRATION, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1297 STEP NO--UR/0104/70/041/003/0022/0024

CIRC ACCESSION NO--AP0134971

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134971

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ION EXCHANGE FILTERS WITH REGENERATION OF ION EXCHANGER RESINS AFTER LEAVING THE FILTER ARE MORE ECONOMICAL THAN THOSE WITH INTERNAL REGENERATION. THE CONSUMPTION OF REAGENTS AND CONDENSATES IS LESS FOR THE FORMER FILTERS IN VIEW OF BETTER REGENERATION CONDITIONS WHICH IS THE CAUSE OF INCREASED EXCHANGE OPERATING CAPACITY. THE MAX. ADMISSIBLE FILTRATION RATE OF FILTERS WITH INTERNAL REGENERATION IS 50M-HR; FOR FILTERS WITH EXTERNAL REGENERATION THIS RATE MAY BE HIGHER. LOSSES IN ION EXCHANGER WITH EXTERNAL REGENERATION ARE NOT GREATER THAN THOSE WITH INTERNAL REGENERATION FILTERS.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COMPLEXES OF GERMANIUM TETRACHLORIDE WITH O AND M AMINOBENZOIC ACIDS -U-

AUTHOR-(03)-BELOUSOVA, YE.M., SEYFULLINA, I.I., STASENKO, I.V.

B

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 815-17

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GERMANIUM COMPOUND, AMINE, BENZOIC ACID, COMPLEX COMPOUND, THERMOGRAPHIC ANALYSIS, POTENTIOMETRIC TITRATION, X RAY DIFFRACTION STUDY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0822 STEP NO--UR/0079/70/040/004/0815/0817

CIRC ACCESSION NO--AP0134555

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134555

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOGRAPHIC AND CONDUCTIMETRIC TITRIMETRY WERE USED TO STUDY THE COMPLEXES FORMED BY O AND M H SUB2 NC SUB6 H SUB4 CO SUB2 H WITH GECL SUB4 IN VARIOUS SOLVENTS. THE FOLLOWING WERE ISOLATED: GECL SUB4 TIMES 4(O H SUB2 NC SUB6 H SUB4 CO SUB2 H) TIMES 2ACOH, M. 180DEGREES, WHICH LOST THE ACOH IN SEVERAL MONTHS IN OPEN AIR; IN CCL SUB4 THE PRODUCT WAS GECL SUB4 TIMES 6(O H SUB2 NC SUB6 H SUB4 CO SUB2 H), M. 160DEGREES; GECL SUB4 TIMES 4 (M H SUB2 NC SUB6 H SUB4 CO SUB2 H), M. 270DEGREES. X RAY DIFFRACTION DATA WERE TABULATED FOR THE COMPLEXES. THE COMPLEX OF THE META ISOMER WAS MORE STABLE THERMALLY THAN THAT OF THE ORTHO ISOMER. FACILITY: ODESS. GOS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SOLVOLYSIS OF GERMANIUM TETRACHLORIDE IN NONAQUEOUS MEDIA -U-

AUTHOR-(03)-BELOUSOVA, YE.M., SEYFULLINA, I.I., BOBROVSKAYA, M.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 996-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GERMANIUM COMPOUND, CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1075 STEP NO--UR/0078/70/015/004/0996/0999

CIRC ACCESSION NO--AP0123068

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0123068
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THE SOLVENT ON COMPLEX FORMATION OF GECL SUB4 WITH N CONTG. SUBSTANCES WERE STUDIED CONDUCTOMETRICALLY IN NONAQ. MEDIA TO CLARIFY THE SOLVOLYSIS OF GECL SUB4 IN ME SUB2 CO OR ACOH. THE DEGREE OF SOLVOLYSIS IS GREATER IN ACOH THAN IN ME SUB2 CO. SOLVOLYTIC CONSTS. IN ACOH ARE 8.7 TIMES 10 PRIME NEGATIVE6 AND 2.74 TIMES 10 PRIME NEGATIVE11 (K SUB1 AND K SUB2, RESP.).
FACILITY: ODESS. GOS. UNIV. IM. MECHNIKOVA, ODESS, USSR.

UNCLASSIFIED

USSR B UDC: 541.49-547.583.5:543.257-546.289-547.289

BELOUSOVA, YE.M., SEYFULLINA, I.I., and STASENKO, I.V., Odessa State University imeni I.I. Mechnikov, Odessa, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Complex Compounds of Germanium Tetrachloride With o- and m-Aminobenzoic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 815-817

Abstract: The interaction of germanium tetrachloride with o- and m-aminobenzoic acid (OAB and MAB) from solutions in acetic acid and carbon tetrachloride gives compounds of the composition $GeCl_4 \cdot 4OAB \cdot 2CH_3COOH$, $GeCl_4 \cdot 4MAB$, $GeCl_4 \cdot 6OAB$. The individuality of the compounds was confirmed roentgenographically by comparing the calculated interplanar spacings of the initial and resultant substances. A thermographic study showed that the compound containing six OAB molecules is thermally less stable than the compound with four molecules, but they are more stable than the initial anthranilic acid. The complex compound with MAB is thermally more stable than the compounds with OAB.

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1/2 008 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--INTERACTION OF GERMANIUM TETRACHLORIDE WITH NICOTINIC ACID -U-

AUTHOR-(02)-BELOUSOVA, YE.M., SEYFULLINA, I.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 579

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PRECIPITATION, GERMANIUM COMPOUND, CHLORIDE, NICOTINIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0791 STEP NO--UR/0078/70/015/002/0579/0579

CIRC ACCESSION NO--AP0104237

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104237

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A FINE CRYST. PPT. SEPD. ON MIXING GECL SUB4 WITH NICOTINIC ACID IN A 1:4 MOLE RATIO. THE PPT. HAS THE COMPN. C SUB24 H SUB20 CL SUB4 GEN SUB4 O SUB8, IT IS STABLE IN ATM. AND M. 254DEGREES. IT HYDROLYZES WHEN DISSOLVED IN H SUB2 O.

AA0017220

B

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 10/69

228354 OBTAINING AN AXOMETRIC IMAGE OF THE SPECTRE IN PROCESS ANALYSIS. For observing processes in atomic spectrometry it is usual to use an electronic radiation tube. The axonometric projection is the nearest method for passing information on to the electrono-radiating tube.

The device for obtaining an axonometric spectre image contains converters "code - voltage", boosters with a summing transistor, connected at the exit of "Code - voltage".

In the suggested modification in each of the boosters is incorporated an additional summatoring transistor. The bases of which are connected to the source of displacement, while the emitters are connected to the current supplying transistors. At the same time the collectors of summator transistors of various boosters are connected through the potentiomenters to commutator exit. The transistor bases are connected to the exits of the converters "code - voltage", while the exits of the boosters to the entry of the system "OR".

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4.9.67 as 1181784/18-24. A BELOV & OTHERS. (6.3.69) Bul 31/8.10.67. Class 42m^5. Int.Cl. G 06j.

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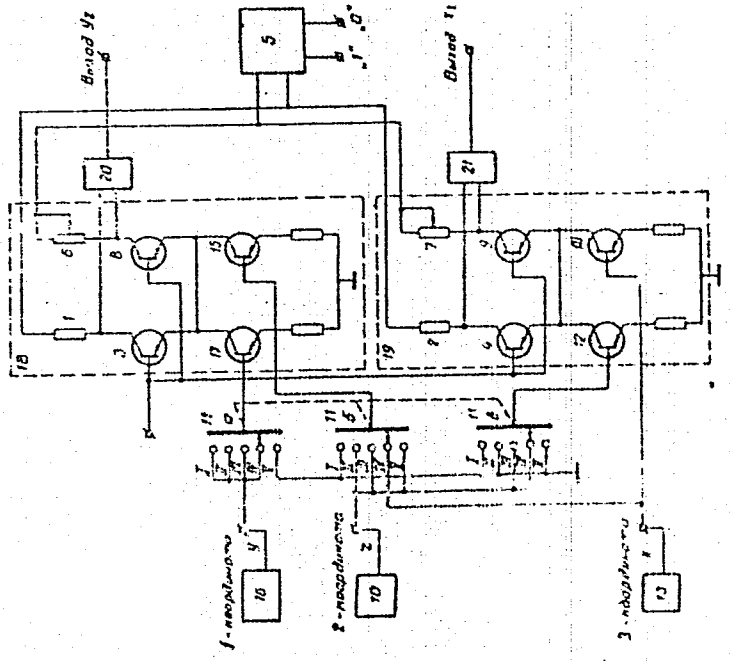
A9600525

AA0017220



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19600526

USSR UDC: 621.375.7

GERTSENSHTEYN, M. Ye., LEVINZON, F. A., BELOV, A. A., TETEL'BAUM, B. I.

"Three-Frequency Parametric Circuit as a Negative Capacitance"

Moscow, Radiotekhnika i Elektronika, Vol. 16, No 6, Jun 71, pp 990-995

Abstract: This paper discusses conditions for realizing negative capacitance in the video frequency range by means of a three-frequency parametric circuit, which is of interest for operation of a parametric video amplifier from a capacitive circuit. It is shown that in the case of a certain detuning of the output circuit relative to the pumping frequency and fairly low amplitude of the second harmonic, negative capacitance may be realized in a predetermined video frequency range in the nonlinear capacitance spectrum. A formula is derived for the maximum possible negative capacitance. Experimental and theoretical curves are compared for the insertion capacitance at the input of a reactive video amplifier for various values of detuning of the output tank and various circuit parameters.

The analysis shows that realization of negative capacitance in the form of a three-frequency parametric circuit requires positive detuning of the output circuit, and a very low coefficient of modulation of the nonlinear capacit-

USSR

[illegible], K. Yo., et al, Radiotekhnika i Elektronika, Vol. 16, No 6, [illegible] pp 994-995

[illegible] with respect to the second harmonic. The negative capacitance may be kept satisfactorily constant over the predetermined video frequency range.

2/2

BELOV, A. A.

Geosynclines

Geosynclines

Source: JPRS #56715 8 Aug '72

THE TECTONICS OF THE URALS-MONGOLIAN BELT
AND THE THEORY OF GEOSYNCLINES

(Conference in Moscow)

[Article by Candidate of Geological and Mineralogical Sciences
A. A. Belov, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol
42, No 6, June 1972, pp 115-116]

The Urals-Mongolian folded belt has the form of an enor-
mous arc which extends from the Arctic Ocean to the Pacific and
bends around the Siberian Platform from on the west and south.
It includes the Urals and the West Siberian lowland, Central
Kazakhstan, part of the Turan lowland, the Tien Shan and Altay
mountain systems, Salir, Kuznetskiy Alatau, Sayan, and all of
Mongolia, Vostochnoye Zabaykal'ye and Priamur'ye, and Northeast-
ern China. The distribution of large ore raw-material bases
within the limits of individual parts of the Urals-Mongolian
belt has a regular connection with its tectonic structure, and
on the correctness of concepts of the tectonics of the belt and
of the history of its development depend successes in surveys
and prospecting for new deposits.

Side by side with the purely practical importance of the
Urals-Mongolian belt one should point out its great interest
with respect to the solution of very important theoretical prob-
lems of geotectonics. It was precisely they which were discussed
at a conference on the tectonics of the Baykal and Paleozoic
folded regions of the Urals-Mongolian belt held in Moscow on 14-
17 February, a conference convoked by the Tectonic Committee
under the Department of Geology, Geophysics and Geochemistry of
the AS USSR. About 700 specialists from scientific and produc-
tion organizations who participated in the conference heard and
discussed 22 reports devoted to the structure of the Urals-Mon-
golian belt and its separate parts, including the Baykal, Cale-
donian and Hercynian folded zones, the tectonics and origin of
the foundation and its role in the development of Geosynclinal

USSR

UDC 621.391.19

BELOV, A. D.

"Symbol Recognition Procedure"

USSR Author's Certificate No 310271, filed 4 Jan 70, published 20 Sep 71 (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A569P)

Translation: A symbol recognition procedure is proposed which uses breakdown of the symbol zone with respect to height into several groups. The procedure is based on isolating the sequence of attributes of approach of the symbol to the receptor matrix. In order to increase the recognition speed and reliability, the symbol is scanned with respect to groups of horizontal lines for example, three on both sides of the symbol to a given depth, and the symbol is shifted at an angle to the scanning direction. There are 5 illustrations.

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USSR UDC 621.391.19

BELOV, A. D.

"A Method of Recognizing Symbols"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 23, Aug 71, Author's Certificate No 310271, Division G, filed 4 Jan 70, published 26 Jul 71, p 157

Translation: This Author's Certificate introduces a method of recognizing symbols in which the zone of the symbol is broken down into several groups with respect to height. The method is based on isolating a sequence of indicators of "pullover" of a symbol onto a receptor matrix. As a distinguishing feature of the patent, the speed and reliability of recognition are improved by scanning the symbol along groups of straightedges (e. g. three) on both sides of the symbol to a given depth, and by moving the symbol at an angle to the scanning direction.

1/1

USSR UDC 669.15.018.23-14(088.8)

BELOV, A. D., VILIM, YU. V., KOSOBOKOV, E. A., SEDOV, V. V., YAROPOLOV, I. I., VASIL'YEV, V. D.

"Automatic Cast Stainless Steel"

USSR Author's Certificate No 276433, Filed 15 Jul 68, Published 12 Oct 70, (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I613P)

Translation: In order to improve machinability, steel containing the following (in %) is proposed: C $\leq$ 0.12, Cr 17-20, Ni 8-11, Bi 0.1-0.2, S 0.06-0.12, P $\leq$ 0.035, Si $\leq$ 1.0, Mn 1.0-2.0. The presence of S and Bi in steel raises the strength of the cutting tool and improves the machinability of the steel. When using the steel (compared with 1Kh18N9TL steel) the cutting rate with 60-min strength of the tool is improved by 25-50%, or the strength of the cutting tool is increased by 2-6 times.

1/1

Powder Metallurgy

USSR UDC: 669.245'26:621.762

BELOV, A. F., FATKULLIN, O. Kh., POPOV, D. S., STAROSVETSKIY, D. I., Moscow

"Degassing of Nickel-Chromium-Based Alloys Made by Powder Metallurgy Methods"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 101-105.

Abstract: This work studies one problem in the area of improvement of processes of powder metallurgy of nickel-chromium-based alloys -- the gas content of the materials produced from various types of charge (alloyed powders and mixtures of powders of the individual alloy components), and the influence of certain technological parameters on the final gas content in the powders. The temperature dependences were produced for the liberation of gasses in a vacuum from powder materials composed of individual components and produced by atomizing, used as the charge for nickel-based alloys. The gas content of various fractions of powders produced by atomizing of a melt into water has an extreme. The extremal nature of the gas content of various powder fractions is explained by the influence of changes in the total surface of the powders and the number of pores in the particles.

UDC 629.78.002.3

USSR

BELOV, A. F.

"Some Means of Improving the Mechanical Properties of Intermediate Products Made of Heat-Resistant Alloys"

V sb. Splavy tsvet met. (Nonferrous Metal Alloys--collection of works), Moscow, Nauka, 1972, pp 17-23 (from RZh-Raketostroyeniya,otdel'nyy vypusk, No 12, Dec 72, Abstract No 12.41.236)

Translation: A study was made of means of improving the high-temperature strength of alloys in one area of the technological process -- obtaining the billet. The development and mastery of the technological process of vacuum-arc melting marked an important step in the production of heat-resistant nickel alloys and improving their high-temperature strength. As a result of this step, additional alloying and improvement of the level of the properties of the alloys became possible. In addition, vacuum-arc melting has led to increased purity and improvement of the technological plasticity. A study was made of the furthermeans of improving the properties of heat-resistant alloys such as melting in cathode-ray furnaces, using cermet electrons for vacuum-arc and other forms of melting, the manufacture of billets by sintering powdered alloys and plasma-arc melting. There are 2 illustrations, 6 tables and a 5-entry bibliography.

1/1

USSR UDC 539.5

BELOV, A. F., BOBOVNIKOV, N. D., FATKULLIN, O. KH., Moscow. VILS (expansion unknown)

''The Influence of the Production Technology of Semifinished Products on the Mechanical Properties of Heat-Resistant Alloys''

Kiev, Problemy Prochnosti, No. 6, 1971, pp 105-109

Abstract: The critical factor in the development and organization of the production of heat-resistant materials was the development of jet engines, which replaced piston engines on aircraft. Considerable progress in the field of the production of deformable alloys has been made due to the introduction of the vacuum melting of metal. Vacuum melting is an important stage in improving the properties of heat-resistant alloys. One of the basic factors limiting the operating capacity of an engine is the quality of the turbine disks. Up to 1962, turbine disks in the USSR had been produced from open-melted metal, and this process had many drawbacks. A radical change took place with the introduction, in 1962, of the vacuum arc remelting process, which resulted in metal of improved quality with high and stable mechanical properties. At present there has been developed a basically new technique for obtaining nickel-based heat-resistant alloys in which the

USSR

BELOV, A. F., et al., Problemy Prochnosti, No 6, 1971, pp 105-109

defects of the duplex process are eliminated. The essence of this technique consists in the employment, during the vacuum arc remelting process, of electrodes produced by powder metallurgy on the basis of carbonyl nickel powder. Further improvement in metal quality is provided by the electron-beam remelting of nickel alloys, which has very recently been developed. 6 tables.

2/2

USSR

UDC: 621.374.32

ANDREYTSEV, P. P., BELOV, A. F., KURKOV, Ye. V., and DOTSENKO, Yu. Yu.

"Problems in the Design of Digital Computer Circuits"

Tr. Soyuz. NII priborostr. (Transactions of the Union of Scientific Research Institutes of Instrument Construction) No 18, 1972, pp 65-73 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A494)

Translation: Problems of improving the operational speed and reliability of single-channel computer devices as the result of the use of more optimal unit circuitry are considered. Three illustrations, bibliography of four. Resume

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USSR UDC: 621.374.32

BELOV, A. F., DOTSENKO, Yu. Yu., and KURKOV, Ye. V.

"Binary-Decimal Counter"

Avt. sv. SSSR, kl. H 03 k 23/00, No 320061, zayavl. 17.07.70 opubl. 4.01.72 (Author's Certificate, USSR, class H 03 k 23/00, No 320061, claimed 17 July 1970, published 4 January 1972) (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A500P)

Translation: A binary-decimal counter containing four triggers, a shaper, and two transistorized switches in a common emitter circuit is proposed. Two illustrations

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USSR

UDC: 621.374.32:621:382.82

BELOV, A. F. and DOTSENKO, Yu. Yu.

"Computing Devices Using Integrated Circuits"

Tr. Soyuz. NII priborostr. (Transactions of the Union of Scientific Research Institutes of Instrument Construction) No 18, 1972, pp 74-85 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A495)

Translation: An analysis is given of some computers using integrated circuits with mounted elements in hybrid-film arrangements as well as without mounted elements. Six illustrations. Bibliography of six. Resume

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AA0043488

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

239683 A REGISTER. The circuit has been improved by adding an extra trigger, a change over key, a memory matrix and a group of switches. The read out input of a trigger through a changeover key is connected to outputs of triggers of the higher digits of the address counter and the numerical register. The potential outputs of the register are connected to the inputs of switches of higher digits and to the group of additional switches. The outputs of the switches through an additional memory matrix are connected to the outputs of switches of lower digits of the given coordinate. The output of the current generator is connected to the stoppage coils of the basic and the additional memory matrices.

19.6.67 as 1168845/18-24. A.F. BELOV (6.8.69)

Bul 11/18.3.69. Class 42m6. Int.Cl.G 06 k.

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19761873

USSR UDC 681.3

BELOV, A. F., VINOKUROV, YU. S., NIKOLAYEV, G. N.

"Device for Storing Stationary Electric Signals"

USSR Author's Certificate No 310253, filed 22 Jul 69, published 1 Oct 71 (from RZh --Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A528P)

Translation: A device proposed for storing stationary electric signals contains a storage unit, a number register, an address register, a coding unit, a programming unit, a generator, and an output unit. There is 1 illustration.

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USSR

UDC[537.226+537.311.33]:[537+535]

BELOV, A. F., and IL'IN, V. I.

"Investigation of Hall Effect and Electrical Conductivity in Polycrystalline Layers of Lead Sulfide"

Tr. Leningr. politekhn. in-t (Works of Leningrad Polytechnic Institute), 1971, No 325, pp 19-23 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1456 by authors)

Translation: The Hall effect was measured using an apparatus with a variable magnetic field and alternating current. The individual components of this apparatus are briefly described, and the noise of layers on the Hall emf frequency is evaluated; the influence of brightening on electrical conductivity and the Hall constant of photoconductive layers is studied. The results indicate the validity of describing photoconductivity by means of a concentration-type model. Parameters of activated and nonactivated layers are compared. Results are presented from the investigation of the aging of nonactivated layers in air after their removal from the vacuum system.

1/1

Nuclear Physics

USSR

BELOV, A. G., GANGRSKIY, Yu. P., DALKHSUREN, B., KUCHER, A. M., NGUYEN, Kong Kkhan', Joint Institute of Nuclear Research

"Search for α-Emission in Decay of Spontaneously Fissioning Isomers"

Moscow, Yadernaya Fizika, Vol 17, No 5, May 73, pp 942-946

Abstract: The paper gives the results of experiments to detect α-emission in decay of spontaneously fissioning isomers of Am^{242} ($T_{1/2}$ = 14 ms), Am^{240} (0.9 ms) and Pu^{241} (27 μs) formed in reactions (n,2n) with a cross section of 100-200 μb at a neutron energy of 14.7 MeV, which is considerably greater than the cross sections of reactions with charged particles. The α-particles were registered by a multifilament proportional counter 120 mm in diameter with a resolving time of about 0.1 μs. No alpha-emitters were observed with energy greater than 7 Mev and half-life in the region of 10^{-5}-10^{-2}sec. This would seem to indicate that α-transitions from isomer levels are forbidden. The authors thank G. N. Flerov for continued interest in the work.

1/1

Acc. Nr: AP0100223 Abstracting Service: CHEMICAL ABST. Ref. Code: UR 0062

111602d Decomposition of π-allyl complexes of palladium in alkaline aqueous and alcoholic solutions. Beloy, A. P.; Moiseev, I. I.; Syrkin, Ya. K. (Inst. Tonkoi Khim. Tekhnol. im. Lomonosova, Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 46–9 (Russ). Kinetic data were reported for the reaction of π-allylpalladium chloride complex in aq. alkalies in the presence of pyridine, MeOH, EtOH, CH_2:$CHCH_2OH$, and O. Pyridine converts the complex to a stable pyridine salt which barely decomps. under normal conditions. Addn. of MeOH or EtOH increases the rate of decompn. of the complex and C_2D_5OH has a 2.8-fold isotope effect relative to EtOH. CH_2:$CHCH_2OH$ sharply raises the rate of decompn. of the complex and the amt. of generated MeCH:CH_2 increases by ~100% and amts. to 1 mole per C_3H_5PdCl structure unit present. The MeCH:CH_2 generation comes from the π-allylic grouping and not from the ROH in this case. In O atm. the decompn. of the complex is inhibited and the product is a compd. of Pd(II); at 50–60° in O atm. the decompn. of $(C_3H_5PdCl)_2$ is much slower than in argon atm. and the product is not metallic Pd but compds. of Pd (II), without formation of olefin. G. M. Kosolapoff

REEL/FRAME
19841613

USSR

UDC 621.382

BELOV, ALEKSANDR SERGEYEVICH; GORDEYEVA, VALENTINA IVANOVNA; NEFEDOV, ANATOLIY VLADIMIROVICH

"Interchangeable Native And Foreign Semiconductor Devices"

Vzaimozamenyayemyye otechestvennyye i zarubezhnyye poluprovodnikovyye pribory (cf English above), Moscow, Izd. "Energiya," 1971. 104 pp. ill. 32 k.

Abstract: Information is presented in this handbook concerning native and foreign semiconductor devices, recommendations are made with respect to a selection of approximate analogs, and the nomenclature is cited of semiconductor devices and interchangeable devices of a number of countries. The handbook is intended for a wide circle of readers occupied with electronics.

CONTENTS

1/3

USSR

BELOV, ALEKSANDR SERGEYEVICH, et al., Vzaimozamenyayemyye otechestvennyye i zarubezhnyye poluprovodnikovyye pribory, Moscow, Izd. "Energiya," 1971. 104 pp. ill. 32 k.

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USSR

BELOV, ALEKSANDR SERGEYEVICH, et al., Vzaimozamenyayemyye otechestvennyye i zarubezhnyye poluprovodnikovyye pribory, Moscow, Izd. "Energiya," 1971. 104 pp. ill. 32 k.

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AA0052689 - BELOV, B.F. UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, J-10

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244207 TRENCH EXCAVATOR comprises rotor with buckets. It is distinguished by providing the bucket terminal sections with longitudinal walls 3,5. One of them 3 is made at right angles to the bucket bottom 4, whereas the lower part of the other is made at an angle. This excludes the shock action from the walls of the pipe opening device.

10.2.68. as 1217820/29-14, ODINTSOV, L.A. et al. (8.10.69) Bul 17/14.5.69. Class 84d, Int. Cl. E 02f.

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19821472

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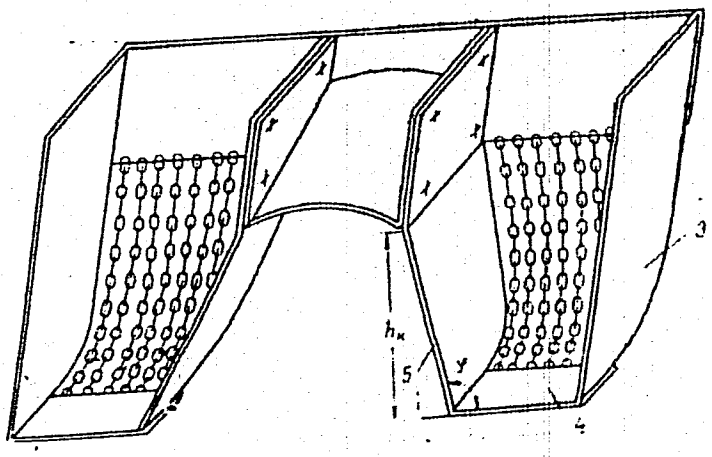
AA0052689

Odintsov, L.A.; Belov, B.F.;
Rashchepkin, K.Ye.; Berdnikova, Z.K.; Bakiyeva, O.Z.



19821473

1/3 031 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--NEW HEAT RESISTANT SPRING ALLOY 17NKHBMYU -U-

AUTHOR--BELOV, B.G., PLATOVA, S.N., BARSEGYAN, L.V.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 25-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--HEAT RESISTANT ALLOY, SPRING STEEL, LOW ALLOY STEEL, ELASTICITY, NICKEL STEEL, CHROMIUM STEEL, NIOBIUM STEEL, ALUMINUM STEEL, INTERMETALLIC COMPOUND/(U)ELASTOMAT METAL TEST EQUIPMENT, (U)17NKHBMYU LOW ALLOY SPRING STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1299 STEP NO--UR/0129/70/000/002/0025/0028

CIRC ACCESSION NO--AP0106078

UNCLASSIFIED

2/3 031 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106078

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALLOY CONTG. C SMALLER THAN OR EQUAL TO 0.06, CR 14-16, NB 9.5-10.5, MO 4-6, AL 1.0-1.5PERCENT AND NI WAS MELTED IN AN INDUCTION FURNACE, THE INGOTS WERE FORGED AT 1050-1170DEGREES AND THE SHEET BARS OBTAINED WERE HOT AND COLD ROLLED. THE 0.3 MM THICK MICROSPECIMENS AND THE 0.6 MM THICK, FLAT TEST PIECES WERE TENSION TESTED BY USING THE "AMSLER" MACHINE AT ROOM TEMP., AND UP TO 600DEGREES, RESP. THE ELASTIC LIMIT SIGMA SUB0.2, AND SIGMA SUB0.005 AND THE STRESS RELAXATION WERE DETG. BY THE BEND TESTS OF THE 0.3 TIMES 5 TIMES 100 MM SPECIMENS AT 500-600DEGREES; THE MODULUS OF ELASTICITY E WAS MEASURED BY THE RESONANCE FREQUENCY METHOD WITH THE "ELASTOMAT" APP. AND CYLINDRICAL 8 MM DIAM. SPECIMENS. THE COLD DEFORMED SPECIMENS, THOSE QUENCHED FROM 1100, 1150, AND 1200DEGREES, AND THOSE TEMPERED AT 750DEGREES FOR 5 HR AFTER QUENCHING FROM 1100-50DEGREES, WERE TESTED. THE ALLOY SHOWS HIGH RELAXATION STABILITY AT 500 AND 550DEGREES. THE STRESS DURING 50 HR TESTING DECREASES BY 8 AND 15PERCENT, RESP. INCREASE OF THE TEMP. UP TO 600DEGREES CAUSES THE 30PERCENT STRESS RELAXATION DURING 50 HR. THE CYCLIC STRESS TESTS SHOWED THAT NO. OF CYCLES TO FRACTURE AT 70-80 KG-MM PRIME2 WAS (3.8-4.7) TIMES 10 PRIME5. THE METALLOGRAPHIC EXAMNS. REVEALED THAT THE STRUCTURE OF THE ALLOY QUENCHED FROM 1150DEGREES CONSISTS OF THE GAMMA SOLID SOLN. GRAINS WITH A SMALL AMT. OF A 2ND PHASE. THE PHASE ANAL. REVEALED THE PRESENCE OF NI SUB3 NB, M SUB6 C, AND NB(CN) PHASES, WHERE M IS A METAL.

UNCLASSIFIED

3/3 031 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106078

ABSTRACT/EXTRACT--THE TEMPERING AT 750DEGREES FOR 10-25 HR CAUSES DECOMPN. OF THE SUPERSATD. SOLID SOLN. ASSISTED BY THE PPTN. OF FINE DISPERSED FCC. (NI, CR) SUB3 (NB, MO, AL) PHASE OF THE NI SUB3 NB TYPE. J. PIETKIEWICZ.

UNCLASSIFIED

USSR UDC: 51:621.391

BELOV, B. I., SANDIMIROV, V. P.

"On the Theory of Linear Binary Codes"

Irkutsk, Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib. Otd. AN SSSR (Works on Applied Mathematics and Cybernetics. Siberian Power Engineering Institute of the Siberian Department of the Academy of Sciences of the USSR), 1972, pp 108-132, bibl. of 5 titles (manuscript deposited in VINITI 26 Dec 72, No 5285-72 Dep.) (from RZh-Kibernetika, No 5, May 73, abstract No 5V585 DEP by the authors)

Translation: The paper considers several variations of lexicographically ordered binary codes, and studies some of their properties. In particular, a sufficient condition is formulated for the linearity of a lexicographically ordered binary code. An operator for expansion of binary codes is then introduced according to which each zero of the initial code is replaced by the matrix $\left(\begin{smallmatrix}0&0\\0&1\end{smallmatrix}\right)$, and each one is replaced by the matrix $\left(\begin{smallmatrix}1&1\\1&0\end{smallmatrix}\right)$. It is shown that the expansion operator has the

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USSR

BELOV, B. I., SANDIMIROV, V. P., Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib. otd. AN SSSR, 1972, pp 108-132, 5285-72 Dep.

following properties: 1) a linear code is converted to a linear code; 2) with certain limitations on the parameters n, k and d, optimum codes are converted again into optimum codes. A rule is established whereby a modular representation of the transformed code is obtained if the modular representation of the initial code is known. By using the expansion operator, a class of optimum linear binary codes is constructed which coincides in power with the class of Venturini codes.

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USSR

UDC: 621.9.014:669.14.018.8

BELOV, B. KH., Candidate of Economic Sciences, RUDNEV, A. V., Candidate of Technical Sciences, and CHEREMISIN, V. T.

"Machinability of Precipitation Hardened Stainless Grades of Steel"

Moscow, Mashinostroitel', No 5, May 73, p 29

Abstract: Studies were conducted at the All-Union Scientific-Research Instrument Institute (VNII) on determining the optimal conditions for machining the most characteristic representatives of precipitation hardened, stainless grades of steel. These studies made it possible to determine the most rational tool material, geometric parameters for tool sharpening, cutting regimes, and other effective conditions involved in machining operations such as turning, milling, drilling, and cutting threads with taps. The cutters subjected to stability testing were made from the VK6 and T14K8 hard alloys and the R10K5F5 high-speed cutting steel designated for turning Kh17N5M3 grade steel of various hardness and Kh15N9Yu grade steel with an HB of 170 at various cutting regimes. The results show that the stability of hard-faced cutters is reduced as cutting speed and hardness of the machined grades of steel are increased. An insignificant increase in stability was obtained by machining with cutters made from the T14K8 hard alloy, in comparison with cutters made from the VK6 hard alloy for machining steel with an HB of 300. In machining the Kh17N5M3 grade of steel (HB 444),

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USSR

BELOV, B. KH., et al, Mashinostroitel', No 5, May 73, p 29

it was determined that cutters made from the VK6 grade hard alloy were most stable. Data on milling are also given. The results show that optimal results are obtained at a cutting speed of 21-27m/minute, at a feed of 0.04-0.05mm/tooth, and a cutting depth of up to 6mm.

2/2

1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF ELECTRON BOMBARDMENT ON THE LUMINESCENCE OF A COPPER ACTIVATED ZINC SULFIDE PHOSPHOR -U-

AUTHOR-(03)-KOLOMOITSEV, F.I., BELOV, O.G., KONDRASHOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(1), 353-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BOMBARDMENT, ZINC SULFIDE, ELECTRIC FIELD, ELECTROLUMINESCENCE, ELECTRON ENERGY, RADIATION INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1052 STEP NO--UR/0368/70/012/002/0353/0355

CIRC ACCESSION NO--AP0107561

UNCLASSIFIED

2/2 033 .UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0107561
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF SIMULTANEOUS BOMBARDMENT WITH FAST ELECTRONS AND THE APPLICATION OF A SINUSOIDAL VOLTAGE ELEC. FIELD ON THE NONADDITIVE LUMINESCENCE PROPERTIES OF ZNS-CU ELECTROLUMINOPHORS OF THE EL-510M TYPE WAS STUDIED BY USING AN EARLIER DESCRIBED METHOD (F. I. KOLOMOITSEV, D. G. BELOV, A. P. KONDRASHOV, AND E. K. HAL'TSEV, 1970). AT DIFFERENT AMPLITUDES AND A CONST. FREQUENCY OF THE EXCITATION VOLTAGE AND CONST. FLUX AND ENERGY OF THE FAST ELECTRONS, THE BRIGHTNESS OF THE ELECTROLUMINESCENCE, I SUBEL, AND SUBSEQUENTLY THE SUM LUMINESCENCE, ISIGMA, OF THE PHOSPHORS INCREASES BY THE FOLLOWING LAW: I EQUALS AU PRIMEB PLUS I SUBO, WHERE A AND B ARE EXPTL. DETO. COEFFS. AND I SUBO CHARACTERIZES THE LUMINESCENCE BRIGHTNESS EXCITED ONLY BY AN ELECTRON FLUX. IN THE LOW VOLTAGE REGION, THE SUM BRIGHTNESS EXCEEDS THE COMBINED BRIGHTNESS AND LEADS TO A NEG. NONADDITIVITY, DELTAI, WHICH DECREASES WITH INCREASING POTENTIAL TO ZERO AT 90-110 V, DEPENDING ON THE ELECTRON ENERGY. AT A CONST. EXCITATION VOLTAGE, THE LUMINESCENCE BRIGHTNESS IS ALMOST LINEARLY DEPENDENT ON THE ELECTRON ENERGY. THE NONADDITIVITY OF THE BRIGHTNESS AT 140 V IS POS. AND INCREASES WITH INCREASING ELECTRON ENERGY. HOWEVER, AT SMALLER THAN 100 V, THE NONADDITIVITY IS NEG.

UNCLASSIFIED

Acc. Nr: AP0050718 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R0368

94975h Effect of electron bombardment on the glow of an electroluminophor. Kolomoitsev, F. I.; Belov, D. G.; Kondrashov, A. P.; Mal'tsev, E. K. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 145–8 (Russ). In the excitation of luminophor EL-510 m by current of electrons (50 μA, ~25 keV) or by sinusoidal voltage (~80 V, frequency 5 kHz), positions of the max. in the spectrum were virtually unchanged. In the case of current of electrons, the light intensity was significantly lower than in the case of excitation by sinusoidal voltage. Reflected and the surface layer delayed electrons (~50%) did not participate in the excitation of the electroluminophor. During the joint action of penetrating irradn. and elec. field, light intensity was lower than in the excitation by elec. field only. Under the conditions of simultaneous action of sinusoidal voltage and current of charged particles, in an "impoverishment" barrier of the Schottky type, an addnl. amt. of charge carriers was generated as δ-electrons. The appearance of secondary electrons caused a decrease of barrier resistance and the intensity of local elec. field decreased, which led to a decrease of electroluminescence intensity. M. Tichy

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REEL/FRAME
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USSR

KOLOMOYTSEV, F. I., BELOV, D. G., KONDRASHOV, A. P., and MAL'TSEV, Ye. K.

"Effect of Electron Bombardment on Electroluminescence"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1970, pp 145-148

Abstract: By considering the excitation of electrically luminescent materials as the product of separate as well as combined actions of charged particles and electric fields, the authors undertook an investigation into the spectrum of the glow from an EL-510 target. It is asserted that there is no data in the literature for this type of research. The electron beam used in the experiments was obtained by a proton-electron accelerator; the remainder of the equipment and its interrelations are shown in a schematic diagram. Source of the electron beam was a tungsten filament, heated to incandescence, in a Pierce lens. The beam was controlled by two Faraday cylinders. Experiments were conducted at room temperature, and the pressure in the operating chamber was $5 \cdot 10^{-6}$ mm Hg. Luminescent screens in the form of

USSR

KOLOMOYTSEV, F. I., et al, Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1970, pp 145-148

electroluminescent capacitors were the targets; the luminescent substance, EL-510, was deposited on transparent, electrically conducting glass 40-50 microns thick. The results of the experiments are given in the form of curves: with separate excitation of the screen by the electron beam and a sinusoidal voltage of about 80 volts at a frequency of 5 kHz, the maximum of the resultant spectrum did not shift. On the other hand, the intensity of the EL-510 glow under electron bombardment was much less than with the sinusoidal voltage. A possible explanation for this phenomenon is offered.

USSR

UDC 621.314.58

LABUNTSOV, V. A., BELOV, G. A.

"Comparative Analysis of Thyristor Pulse Converters of D-C Voltage"

Dokl. nauchno--tekhn. konferentsii po itogam nauchno--issled. rabot za 1968-1969 gg. Mosk. energ. in-t, 1970. g. Sekts. Elektron. tekhniki. Podsekts. Prom. elektroniki (Report of the Scientific--Technical Conference on the Results of Scientific--Research Work during 1968--1969. Moscow Power Institute, 1970. Electronic Technology Section. Industrial Electronics Subsection), Moscow, 1969, pp 38-51 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5B565)

Translation: A comparative analysis is given for a number of circuits with parallel and series forced commutation. With parallel commutation, the voltage of the commutating circuit is a function of the load. The circuits for parallel commutation differ as to the place for connection of the additional inductivity and an additional semiconductor diode. Differential equations are set up and solved for the commutation circuit. Computed expressions are cited for the recovery time. Curves are presented for the dependence of this time on the load current and also the exterior characteristics for various commutation circuits. 5 ill. 4 ref. I. R.

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USSR

UDC 536.3

BELOV, G. Ya., Moscow

"Radiating Ability of a System Consisting of Semitransparent Isothermal Cover and a Flat Nontransparent Base"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 6, Nov-Dec 72, pp 1268-1276

Abstract: A theoretical study has been carried out of the directional and semispherical monochromatic radiation of a semitransparent isothermal cover deposited on a nontransparent plate. Consideration is given to volume dispersion and absorption, angular dependence of the illumination intensity and the phenomenon of total internal reflection from the surface of the separation between the cover and the surrounding medium. The calculated functions have been obtained on the basis of the solution of transfer equations using the determination of the coefficient of reversible volume dispersion. The cases of diffusional and mirror reflection from the border surfaces are considered individually. The results of the calculations for various reflection systems are compared with each other and with the solutions of other authors.

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Acc. Nr. AP0038569 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UK0000

BELOV G.P.

67362z **Molecular weight distribution of polyolefins.** Belov, G. P.; Lisitskaya, A. P.; Solov'eva, T. I.; Chirkov, N. M. (Inst. Chem. Phys., Moscow, USSR). *Eur. Polym. J.* 1970, 6(1), 29–40 (Eng). Mol. wt. distributions of polyethylene and ethylene-propylene copolymers prepd. with Ziegler-Natta catalysts were studied by pptn. fractionation. The mol. wt. distribution in polyethylene prepd. in the presence of a sol. catalytic system, $(C_5H_5)_2TiCl_2$–Et_2AlCl was bimodal owing to the existence of two types of active centers. The effects of polymn. time, catalyst and solvent natures, and presence of propylene in the ethylene on mol. wt. distribution were investigated. The fractionation results were correlated with the kinetic data on ethylene polymn. The possible mechanism of ethylene polymn. in an alkyl halide medium in the presence of $(C_5H_5)_2TiCl_2$–Et_2AlCl was discussed with respect to the data on mol. wt. distributions. RCDL

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REEL/FRAME
19731748

7 dc

USSR

BELOV, I. A., SHUB, L. I., Leningrad

"Flow of a Vortex in the Neighborhood of a Critical Point"

Moscow, IAN SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov/Dec 70, pp 85-89

Abstract: The authors study axisymmetric flow of a viscous incompressible fluid in the neighborhood of the critical point of an obstruction when stationary vortexes oriented in the direction of the angular coordinate are introduced into the oncoming flow. A solution is given for the vortex transfer equation in the case of an external flow which contains one vortex of maximum amplitude in the low-frequency part of the spectrum. The problem is reduced to solution of a system of ordinary differential equations based on using the finite integral Hankel transform. It is shown that a sufficiently large vortex may have an appreciable effect on the structure of viscous flow close to a barrier.

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USSR

UDC 51:621.391

BELOV, I. B., SHASHIN, A. M.

"Model of a Channel With Grouped Errors"

Tr. Leningr. in-t aviats. priborostr. (Works of the Leningrad Institute of Aviation Instrument Building), 1972, No. 74, pp 71-75 (from RZh-Matematika, No 11, Nov 72, Abstract No 11V36S)

Translation: A discrete binary communication channel with grouped errors is considered as a channel which can be found in two possible states with probabilities α_1 and α_2 ($\alpha_1 + \alpha_2 = 1$). Each state of the channel is described by a model of a binary symmetric channel with transition probabilities $p_1 = 1/2$ and p_2. It is assumed that information is transferred by binary units (n, k)-codes so that the channel is in one of its possible states in the transfer of a specific code word. A technique is given for experimentally determining the parameters of this model. Certain probability characteristics obtained with the aid of the given model are compared with experimental data. Authors abstract.

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USSR

UDC: 51:621:391

BELOV, I. B., SHASHIN, A. M.

"Model of a Channel with Grouped Errors"

Tr. Leningr. In-t Aviats. Priborostr. [Leningrad Institute of Aviation Instrument Building], 1972, No 74, pp 71-75 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V368, by the authors)

Translation: A discrete binary communications channel with grouped errors is studied as a channel which can be in either of two posssible states with probabilities α_1 and α_2 ($\alpha_1+\alpha_2=1$). Each state of the channel is described by a model of a binary symmetrical channel with transition probabilities $p_1=1/2$ and p_2. It is assumed that information is transmitted with binary block (n, k) codes, and that the channel is in one of its possible states during transmission of a specific word. A method is presented for experimental determination of the parameters of this model. Certain probability characteristics produced using the model are compared with experimental data.

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USSR B

UDC 621.396.62:621.396.97

BELOV, I. F., DRYZGO, YE. V.

Spravochnik po tranzistornym radiopriyemnikam (Transistorized Radio Receiver Reference Manual), Moscow, Soviet Radio Press, 1970, 519 pp (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D2K)

Translation: This manual contains the characteristics and descriptions of radio broadcast receivers manufactured by domestic industry in 1959-1968. The information required for repair and adjustment of the receivers is presented: the theoretical and installation schematics, the flow charts for the operating modes of the transistors, the winding data, unsoldering of the leads of the circuit and transformer coils, and data on parts and assemblies. The tuning procedure using measuring and control devices and without them is described. The characteristic failures in the receivers are investigated, and means of eliminating them are studied. There are 297 illustrations and 67 tables.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--GASTROSCOPY IN THE DIAGNOSIS OF GASTROINTESTINAL HEMORRHAGES -U-

AUTHOR-(05)-STRUCHKOV, V.I., SOKOLOV, L.K., LUTSEVICH, E.V., BELOV, I.N., RYSHIKOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 3, PP 59-64

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIAGNOSTIC METHODS, HEMORRAGE, BIOPSY, DIGESTIVE SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1320 STEP NO--UR/0531/70/000/003/0059/0064

CIRC ACCESSION NO--AP0054204

UNCLASSIFIED

CIRC ACCESSION NO--AP0054204

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CARRIED OUT GASTROSCOPIC INVESTIGATION IN 101 PATIENTS SUFFERING FROM GASTROINTESTINAL HEMORRHAGE OF DIVERSE ETIOLOGY. AN EARLY COMPLEX (CLINICO ROENTGENO ENDOSCOPIC) INVESTIGATION ENABLED TO REVEAL THE ORIGIN OF HEMORRHAGE IN 92 PATIENTS. ONLY ENDOSCOPICALLY THE SOURCE OF HEMORRHAGE WAS DISCLOSED IN 36 CASES. OF PARTICULAR IMPORTANCE ARE INVESTIGATIONS INVOLVING THE EMPLOYMENT OF NEW DESIGNS OF GASTROFIBROSCOPES WITH A DEVICE FOR CONTROLLED FLEXION OF THE DISTAL END OF THE APPARATUS AND AIMED BIOPSY. THE AUTHORS ARE OF THE OPINION THAT THE DATA DERIVED ARE PROOF OF THE EXPEDIENCY AND EFFECTIVENESS OF USING EMERGENCY GASTROSCOPY AT THE PEAK OF GASTROINTESTINAL HEMORRHAGE OR AT EARLY PERIODS AFTER ITS CESSATION. THE REFERRED TO EXPERIENCE TESTIFIES TO THE FACT THAT GASTROSCOPY IN GASTRIC HEMORRHAGE DOES NOT AGGRAVATE THE STATE OF PATIENTS. THE HAZARD OF GASTROSCOPY IN HEMORRHAGES IS EXAGERATED.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200320015-6"

USSR UDC 51

BELOV, I. V., KAPLAN, A. B.

"Mathematical Methods in Railroad Transportation Planning. Textbook for Higher Educational Institutes of Railroad Transportation. Second Edition, Revised and Enlarged"

Matematicheskiye metody v planirovanii na zheleznodorozhnom transporte. Uchebnik dlya vuzov zh.-d. transp. Izd 2-ye, pererab. i dop. (cf. English above), "Transport", 1972, 248 pp, ill., 82 kop. (from RZh-Matematika, No 11, Nov 72, Abstract No 11V493 K)

Translation: Chapter 1. Optimality criteria and indices in transportation planning. Chapter 2. Transportation problems in matrix form. Chapter 3. Solution of a transportation problem in grid form. Chapter 4. Several varieties of transportation problems. Chapter 5. Optimization of grid graphs. Chapter 6. Use of general and distributive problems of linear programming in economics calculations. Chapter 7. Nonlinear problems and optimization. Chapter 8. Optimization problems considering constant expenditures.

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USSR

BELOV, I. V., et al, Matematicheskiye metody v planirovanii na zheleznodorozhnom transporte. Uchebnik dlya vuzov zh.-d. transp. Izd 2-ye, pererab. i dop., "Transport", 1972, 248 pp, ill., 82 kop.

Chapter 9. Multistage optimization problems. Chapter 10. Simplest problems in control of resources. Chapter 11. Use of correlation relationships in economics calculations.

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USSR

UDC: 51

BELOV, I. V., KAPLAN, A. B.

"Mathematical Methods in Planning of Rail Transport. A Textbook for Rail Transport Colleges, Second Edition, Revised and Supplemented"

Matematicheskiye Metody v Planirovanii na Zheleznodorozhnom Transporte. Uchebnik Dlya Vuzov Zh.-D. Transp. Izd 2-e, Pererab. i Dop. [English version above], Moscow, Transport Press, 1972, 248 pp (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V493K)

Translation: Chapter 1. Criteria and indicators of optimality in transport planning. Chapter 2. Transport problem in matrix form. Chapter 3. Solution of the transport problem in network form. Chapter 4. Some varieties of transport problems. Chapter 5. Optimization of network graphs. Chapter 6. Use of the general and distributive problems of linear programming in economic calculations. Chapter 7. Nonlinear optimization problems. Chapter 8. Problems of optimization considering constant expenditures. Chapter 9. Multistage problems of optimization. Chapter 10. Simple problems of control of reserves. Chapter 11. Use of correlation dependences in economic calculations.

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USSR UDC 513.78

BELOV, K. M. (Moscow Institute of Soil Engineers)

"Hyperbolic Bent Surfaces"

Moscow, Matematicheskiye Zametki (Mathematical Notes), Vol 10, No 4, 1971, pp 469-478

Abstract: Isolated singular points of a family of characteristics of hyperbolic curved surfaces are studied and certain consequences are given that characterize the bending of closed surfaces and surfaces with edges. A hyperbolic surface is defined as a bent surface that has a grid of real characteristics, including surfaces having average curvature, spindled surfaces, and others. Seven theorems are given and proved: 1) The index of an isolated singular point of a hyperbolically bent surface is negative with respect to the family of curvature characteristics; 2) the index of an isolated singular point of a hyperbolically bent surface is negative with respect to the family of curvature lines; 3) if a closed zero-order surface has a simple curvature, the surface contains eliptical curvature points;

USSR.

BELOV, K. M., Matematicheskiye Zametki, Vol 10, No 4, 1971, pp 469-478

4) a zero-order closed surface does not permit simple bending for which the absolute value of the mean curvature is less or equal to the actual curvature in some neighborhood of a set of points on the surface in which the gaussian curvature is negative; 5) closed, star-shaped surfaces do not permit simple bending; 6) simple bending of a hyperbolic surface does not produce closed smooth characteristics containing a singularly connected part of the surface; and 7) simple hyperbolic bending of a surface does not produce closed smooth lines of curvature containing a singularly connected part of the surface.

Orig. art. has 11 refs.

2/2

USSR

BELOV, K. P., NIKITIN, S. A., et al (Moscow State University, Baykov Metallurgical Institute of the USSR Academy of Sciences)

"Magnetic Properties of Rare Earth Metal and Iron Compounds of the RFe_3 Type"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, June 1973, pp 2154-2159

Abstract: Magnetic studies of the compounds $DyFe_3$, YFe_3, $HoFe_3$, and $ErFe_3$ -- including measurements of the magnetization in fields up to 53 koersteds and of the variation, with temperature, of the coercive force -- are carried out. The magnetic moment per RFe_3 molecule and also the variation, with temperature, of spontaneous magnetization are determined. The Curie temperature is determined by a thermodynamic method. An anomaly of the coercive force near the magnetic compensation temperature is observed. The variation, with temperature, of the magnetic properties is due to the ferrimagnetic structure of the compounds which is characterized by an antiparallel orientation of the magnetic moments of the iron ion and rare earth ion sublattices. The Curie temperature of the RFe_3 compounds increases noticeably upon an increase of the rare earth ion spin, and this indicates that the contribution of exchange interaction between the rare earth ions and iron ions is considerable.
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USSR

UDC 538.221+538.245

BELOV, K. P., YELYUTIN, O. P., KATAYEV, G. I., NIKITIN, S. A., PSHECHENKOVA, G. V., TARATYNOV, V. P., and SHUL'TE, L. A., Moscow State University imeni M. V. Lomonosov, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Study of Magnetic Properties of Rare-Earth Dysprosium-Holmium-Erbium Alloys at a Temperature of 4.2° K"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 36, No 6, 1972, pp 1247-1251

Abstract: The absence of systematic research on saturation magnetization for polycrystalline samples of rare-earth metals and their alloys makes it impossible to establish whether, in practice, they can be used as high-induction materials in fields up to 50 kOe at low temperatures. The purpose of the present article was to attempt to fill this gap. Pure rare-earth metals (obtained from the State Scientific Research and Planning Institute of the Rare Metals Industry) were studied, as well as dysprosium-holmium-erbium system alloys. Their magnetization curves were measured in fields up to 50 kOe at 4.2° K, values for coercive force and remanence were determined, and hysteresis loops were taken.

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USSR

BELOV, K. P., MILL, B. V., SOKOLOV, V. I., and KHIYEN, T. D., Moscow State University imeni M. V. Lomonosov

"Magnetic Properties of Cobalt-Containing Ferrite-Garnets"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 6, 1971, pp 1649-1653

Abstract: Measurements of the magnetic and magnetostrictive properties of polycrystalline substituted ferrite-garnets of the system $R_3Co_xFe_{5-2x}Ge_xO_{12}$ in which ions with $L \neq 0$ (L is inductance) can be present in each of the three magnetic sublattices of garnet are reported. The charge compositions in the garnet synthesis included Co_3O_4, Fe_2O_3, and GeO_2, along with oxides of hadolinium, terbium, and dysprosium with purity not less than 99.99%. Excess GeO_2 (2-3%) was added to the charge to compensate for vaporization losses. In the temperature range 4.2 - 100°K and in magnetic fields up to 60 kilo-oerstedes, data were obtained on the effect of the Co^{2+} concentration in rare-earth ferrite-garnets on the magnetic field intensity and the coercive force. It was shown that adding Co^{2+} to rare-earth ferrite-garnets leads to a sharp increase in the coercive force variant. An anomalous dependence of the magnetostriction of terbium ferrite-garnets on the field at high Co^{2+} concentrations was observed.
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USSR

BELOV, K. P., NIKITIN, S. A., TALALAYEVA, YE. V., CHERNIKOVA, L. A., KUDRYAVTSEVA, T. V., TIKHONOV, V. V., and IVANOVSKIY, V. I., Moscow State University

"Determination of the Exchange Interaction of Ferrite-Gadolinium Garnet Sublattices Based on the Magnetocaloric Effect"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3, Sep 71, pp 1101-1105

Abstract: Ferrite-rare earth garnets $R_3Fe_5O_{12}$ have a trisublattice magnetic structure. In the majority of cases within the framework of molecular field theory it is possible to examine such ferrite-garnets as having a bisublattice structure. In this case both a and d iron sublattices are examined as a single Fe_{a-d}-sublattice, in the effective exchange field of which are found rare earth ions. The author determined the effective exchange field acting on the R^{3+} ions from the side of the Fe^{3+} ions. Based on the measurement data of the magnetocaloric effect, the susceptibility of the paraprocess, and the specific heat in the region of the temperature of compensation, the authors determined the exchange field in the garnet structure. The measurements showed that for the $Gd_3Fe_5O_{12}$ garnet the field

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USSR

BELOV, K. P., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3, Sep 71, pp 1101-1105

H_{2eff} = 258 kOe, and for $Gd_3Ga_{0.3}Fe_{4.7}O_{12}$ the field H_{2eff} = 232 kOe, which is 10% less than for the gadolinium garnet. The article contains 3 illustration and 6 bibliographic entries.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INDUCED NONCOLLINEAR MAGNETIC STRUCTURE IN RARE EARTH FERRITE GARNETS -U-

AUTHOR-(05)-BELOV, K.P., CHERNIKOVA, L.A., TALALAYEVA, YE.V., LEVITIN, R.Z., KUDRYAVTSEVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 1923-1927

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--FERRITE, GARNET, RARE EARTH METAL, MAGNETIC STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0423 STEP NO--UR/0056/70/058/005/1923/1927

CIRC ACCESSION NO--AP0121097

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121097

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE APPEARANCE OF NONCOLLINEAR MAGNETIC STRUCTURES IN RELATIVELY WEAK FIELDS (UP TO 20 KOE) COULD BE OBSERVED AS A RESULT OF MAGNETOCALORIMETRIC EFFECT MEASUREMENTS IN GD, DY, OR HO FERRITE GARNETS CARRIED OUT IN THE VICINITY OF THE COMPENSATION TEMPERATURE. IT IS SHOWN THAT MEASUREMENT OF THE MAGNETOCALORIMETRIC EFFECT OPENS A NEW POSSIBILITY OF INVESTIGATION OF NONCOLLINEAR SPIN STRUCTURES INDUCED BY AN EXTERNAL FIELD.

FACILITY: MOSKOVSKIY GOSUDARSTVENNYY UNIVERSITET IM. M. V. LOMONOSOVA.

UNCLASSIFIED

B

USSR

BELOV, K. P.; NIKITIN, S. A. (Physics Department, Moscow State University)

"Effects of the Paramagnetic Process in Rare-Earth Ferrite Garnets"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya; May, 1970; pp 957-64

ABSTRACT: Experimental data on the paramagnetic process in rare-earth ferrite garnets in the vicinity of the Curie point, the compensation point, and in the region of the "low-temperature" point are analyzed on the basis of the theory of molecular fields and thermodynamic relationships. The conclusion is drawn that due to the paramagnetic process in the rare-earth sublattice the transition at the compensation point in a magnetic field possesses the properties of a phase transition of the first kind. The constants of the paramagnetic process at the Curie point, the "low-temperature" point, and the compensation point vary uniformly during the transition from one rare-earth ferrite garnet to another, depending on the atomic constants of the rare-earth ions.

The article includes 23 equations and 6 figures. There are 14 references.

1/1

BELOV K.P.

Acc. Nr: AP0043698 ~~Ref Code~~ UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 937-943

ON THE THEORY OF ANOMALIES OF PHYSICAL PROPERTIES OF FERROMAGNETIC SUBSTANCES IN THE VICINITY OF THE MAGNETIC COMPENSATION POINT

K. P. Belov, S. A. Nikitin

It is shown by employing the molecular field method that at the compensation point of rare earth ferrite-garnets there should arise anomalies in the magnetocaloric effect, magnetostriction coercive force and also in the entropy, specific heat and specific volume (in the presence of an external field). This conclusion is in agreement with the experimental data. It is suggested that the compensation point of ferrimagnetics in an external magnetic field is a phase transition of the first kind.

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21

REEL/FRAME
19770102

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EFFECTS OF THE PARAMAGNETIC PROCESS IN RARE EARTH FERRITE GARNETS -U-

AUTHOR-(02)-BELOV, K.P., NIKITIN, S.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR: SERIYA FIZICHESKAYA; MAY, 1970; PP 957-64

DATE PUBLISHED----MAY70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS

TOPIC TAGS--FERRITE, GARNET, RARE EARTH COMPOUND, BIBLIOGRAPHY, THERMODYNAMICS, CRYSTAL LATTICE, CURIE POINT, PARAMAGNETIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1889 STEP NO--UR/0048/70/000/000/0957/0964

CIRC ACCESSION NO--AP0137086

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137086

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL DATA ON THE PARAMAGNETIC PROCESS IN RARE EARTH FERRITE GARNETS IN THE VICINITY OF THE CURIE POINT, THE COMPENSATION POINT, AND IN THE REGION OF THE "LOW TEMPERATURE" POINT ARE ANALYZED ON THE BASIS OF THE THEORY OF MOLECULAR FIELDS AND THERMODYNAMIC RELATIONSHIPS. THE CONCLUSION IS DRAWN THAT DUE TO THE PARAMAGNETIC PROCESS IN THE RARE EARTH SUBLATTICE THE TRANSITION AT THE COMPENSATION POINT IN A MAGNETIC FIELD POSSESSES THE PROPERTIES OF A PHASE TRANSITION OF THE FIRST KIND. THE CONSTANTS OF THE PARAMAGNETIC PROCESS AT THE CURIE POINT, THE "LOW TEMPERATURE" POINT, AND THE COMPENSATION POINT VARY UNIFORMLY DURING THE TRANSITION FROM ONE RARE EARTH FERRITE GARNET TO ANOTHER, DEPENDING ON THE ATOMIC CONSTANTS OF THE RARE EARTH IONS. / FACILITY: PHYSICS DEPARTMENT, MOSCOW STATE UNIVERSITY.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EXPERIMENTAL PROOF OF THE EXISTENCE OF THE ANISOTROPY ON INDIRECT EXCHANGE INTERACTIONS IN HEXAFERRITES -U-

AUTHOR-(02)-BELOV, K.P., KOROLEVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--FOZ. METAL. METALLOVED. 1970, 29(1), 180-2

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--FERRITE, MAGNETIZATION, ANISOTROPY, CRYSTAL LATTICE, CURIE POINT, ZINC COMPOUND, YTTRIUM, INTERMETALLIC COMPOUND, SPIN ORBIT COUPLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0188 STEP NO--UR/0126/70/029/001/0180/0182

CIRC ACCESSION NO--AP0054984

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054984

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANISOTROPY CONST. FOR THE ZN SUB2 Y MATERIAL AS A FUNCTION OF TEMP. IS CALCD. FROM MAGNETIZATION MEASUREMENTS IN THE CURIE POINT (THETA) REGION, AND PARAMAGNETIC SUSCEPTIBILITY ABOVE THETA. IN THE CASE OF HEXAFERRITE CRYSTALS DIRECTIONS PARALLEL AND PERPENDICULAR TO THE C AXIS ARE NOT OF EQUAL IMPORTANCE FOR INDIRECT EXCHANGE, AND ANISOTROPY OF THE EXCHANGE INTERACTION WILL MAKE A SUBSTANTIAL CONTRIBUTION TO THE MAGNETIC ANISOTROPY ENERGY. BELOW THE CURIE POINT, AND POSSIBLY TO SOME EXTENT ABOVE IT, THERE ARE ALSO CONTRIBUTIONS FROM DIPOLAR AND SPIN ORBIT INTERACTIONS. REPLACING THE PB ION BY THE LARGER BA ION OR SMALLER SR ION RESULTS IN DISTORTION OF THE CRYSTAL LATTICE, WHICH CAN RESULT IN DEFORMATION OF THE ENERGY EXCHANGE OF THE CRYSTAL.

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--16SEP70

CIRC ACCESSION NO--AP0048529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIMEN WAS MAGNETIZED AT 4.2DEGREESK IN FIELDS LESS THAN OR EQUAL TO 50 KOE. UNDER THESE CONDITIONS, THE SPECIMEN HAS NO MAGNETIC SATN. THIS CAN BE RELATED EITHER TO THE EXISTENCE OF TRIANGULAR ORDERING OR TO A LARGE MAGNETIC ANISOTROPY. CALCNS. SHOW THAT THE 1ST POSSIBILITY IS CORRECT. THE TEMP. DEPENDENCES OF THE ELEC. RESISTANCE AND MAGNETORESISTENCE OF THE FERRITE WERE STUDIED. MAX. WERE OBSD. ON THE CURVE SIGMA VERSUS TAU. ONE OF THEM IS DETD. BY THE TRUE MAGNETIZATION NEAR THE CURIE TEMP., AND THE 2ND OCCURS AT TEMPS. WHERE THERE IS AN ANOMALY ON THE CURVE IN R VERSUS (1-TAU). THE EXISTENCE OF THE 2ND MAX. ON THE CURVE DELTAR-R(TAU) IS APPARENTLY RELATED TO A DISTORTION OF THE NONCOLLINEAR MAGNETIC STRUCTURE AND ITS TRANSITION INTO A COLLINEAR MAGNETIC STRUCTURE. TEMP. DEPENDENCES OF THE COERCIVE FORCE AND MAGNETIZATION IN WEAK FIELDS DO NOT EXHIBIT ANY ANOMALIES.

UNCLASSIFIED

USSR UDC 669.018:669.017.538.23

BELOV, K. P., YELYUTIN, O. P., NIKITKIN, S. A., PSHECHENKOVA, G. V., SOKOLOV, V. I., and TARATYNOV, V. P., Moscow State University imeni M. V. Lomonosov and Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Magnetic Hysteresis of Rare-Earth Metals and Alloys"

Sverdlovsk, Fizika Metallov i Metallovedniye, Vol 30, No 6, Dec 70, pp 1146-1150

Abstract: A study was made of the hysteresis loops of rare-earth metals and alloys which possess a magnetic structure of the ferromagnetic spiral type (Dy-Er and Ho-Er). Ingots of rare-earth metals with a purity of 99.5% were made in a vacuum-arc zone furnace with a nonconsumable tungsten electrode and a water-cooled copper hearth. Melting was done under argon at a pressure of 300-400 mm Hg in two passes with rotation of the ingots. Samples 2.5 mm in diameter and 28 mm long were machined from the ingots and vacuum annealed for 24 hours at a pressure of 10^{-3} mm Hg. The magnetic characteristics were obtained in a superconducting solenoid (50 kilooersted) at 4.2°K. In this field the hysteresis properties of gadolinium, terbium, dysprosium, holmium,

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200320015-6"

USSR

BELOV, K. P., et al, Fizika Metallov i Metallovedniye, Vol 30, No 6, Dec 70, pp 1146-1150

and erbium and alloys Dy-Er and Ho-Er were studied. A new type of hysteresis was observed in the alloys manifested by failure of the ferromagnetic spiral in a strong field. It was established that despite a vast magnetic anisotropy, cast samples of rare-earth metals and alloys, even under magnetization in a field of 50 kilooersted at 4.2°K, possess comparatively small values of the coercive force which does not exceed 10^3 oersted.

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USSR UDC: 681.332.65

SELIVERSTOV, A. I., BELOV, L. I., LEDOVSKIY, V. N., PYSIN, V. D., AFANAS'YEV, V. I.

"A Random Pulse Sequence Generator"

USSR Author's Certificate No 284022, filed 23 Dec 68, published 23 Dec 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B217 P)

Translation: The device is designed for generating random electrical signals which have predetermined statistical characteristics and shaping pulses which are random with respect to times of appearance, duration, and amplitude. The generator can be used in mathematical modeling of various natural phenomena, technical devices, etc. Well-known random pulse sequence generators contain a source of noise which sends signals to a mixer through two channels, one of which contains two series-connected, transistorized blocking generators, while the other contains a transistorized blocking generator, a peak detector, and a smoothing filter. However, such generators are constructed on the principle of multiple amplification and limitation of the noise voltage from above and below, which causes appreciable complica-

USSR

SHELIVERSTOV, A. I., Soviet Patent No 284022

tion of the device; besides this, a change in the pulse repetition frequency in such devices inevitably leads to a change in the duration of these pulses, which is undesirable in a number of instances. The proposed device is distinguished as follows: A delay element is connected through a two-pole switch between the transistors of the blocking generators in the first channel. A controlling transistor is connected in the emitter circuit of the transistorized blocking generator in the first channel, whose output is connected to the mixer. A control signal from the smoothing filter in the second channel is sent to the base of the transistor, resulting in independent regulation of the number of pulses per unit of time and their pulse length. One illustration.

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USSR UDC 543.544.6:546.79

VDOVENKO, V. M., KRIVOKHATSKIY, A. S., BELOV, L. M., and ALEKSANDROV, B. M.

"Some Problems of the Chromatographic Purification and Preparation of Sources of Transplutonium Elements"

Leningrad, Radiokhimiya, Vol 16, No 4, 1973, pp 534-542

Abstract: Distribution of americium, curium, and californium has been determined between alcoholic solutions containing HCl and strongly alkaline anion exchange resin Dowex-1x4. Strong adsorption of TPE has been observed with distribution coefficients of 10^5-$3 \cdot 10^6$, while admixtures of aluminum, magnesium, calcium, copper(II) and iron(III) were practically untouched. The process of electrolytic isolation of californium from weakly acidic solutions has been studied at various pH values, variable cathode current density and time of electrolysis. Optimal conditions have been selected for a two stage isolation of californium and one stage deposition of berelium from weakly acidic solutions directly on metallic plates, yielding layers of satisfactory quality.

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UDC 591.412:612.273:591.8.05:547.963.3

BELOV, L. N. and KOGAN, M. Ye., Institute of Physiology, Siberian Department of the USSR Academy of Sciences, Novosibirsk

"DNA Content and RNA Synthesis in Mouse Myocardial Cells Following Exposure to Altitude Hypoxia and Administration of Thyroxine"

Leningrad, Tsitologiya, No 6, 1973, pp 722-731

Abstract: A cytofluorometric study of the Feulgen-auramine DNA content and an H^3-uridine autoradiographic study of RNA synthesis were carried out on myocardial cell nuclei from mice exposed to hypoxia 6 hours daily for 1 to 6 days. Intermittent hypoxia for 18 hours or more intensified RNA synthesis and increased Feulgen-DNA by 27% in half the nuclear population. Subcutaneous injection of the mice with 40 μ g of L-thyroxine had a less pronounced effect on RNA synthesis and increased Feulgen-DNA in half the nuclear population by 17%. The similar effects of hypoxia and thyroxine, suggest a common underlying mechanism and are consistent with the hypothesis that activation of RNA synthesis is mediated by hormonal induction.

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53858. TSELLARIUS, Yu. G., L. A. SEMENOVA, and L. N. BELOV. (Lab. Ecol. Morphol. Pathomorphol., Inst. Physiol., Sib. Br. Acad. Sci. USSR, Novosibirsk, USSR.) O nekotorykh gistokhimicheskikh izmeneniyakh myshechnykh kletok serdtsa pri ochagovykh metabolicheskikh povrezhdeniyakh. [Some histochemical changes of the heart muscle cells in focal metabolic injuries.] ARKH PATOL 31(11): 20-26. illus. 1969. [Engl. sum.]--Experiments were carried out on 140 rats with adrenalin [epinephrine] injury of the myocardium; parallel polarization-microscopic, phasic-contrast and histochemical examinations of muscle cells of the heart were carried out. Injuries of the contracture type were attended by an enlargement of binding of ionic stains and an intensification of protein reactions; this was considered to be the result of protein denaturing and reduction of their extraction. PAS [periodic acid Schiff]-positive substrate detected in severe forms of contracture injuries was of glycoproteid nature, and is, evidently, the result of plasmatic impregnation. A high activity of acid phosphatase was seen in contracture changes. Myocytolysis is characterized by disaggregation of myofibrillae and of sarcoplasmatic structures; no acid phosphatase is revealed in the injured areas, this being regarded as a result of lysosome destruction. Possible mechanisms of contracture changes and myocytolysis are discussed.--J. R. C.

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CUN, G. Ya., POLUKHIN, P. I., BAYER, K., and BELOV, M. I.

"Calculating the Deformed State in Drawing Shaped Sections"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 184-193

Translation: A description is given of an experiment to determine the picture of metal flow in the transverse plane during the drawing of shaped sections. On the basis of experimental data, a general method is developed for physical modeling of metal flow in a transverse direction on the basis of the electrohydrodynamic analogy. Analytical and graphic methods of determining the deformed state of the metal after drawing are worked out on the basis of the use of conformal transformation and electrohydrodynamic modeling. Twelve figures and four bibliographic entries.

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JPRS 59208

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XII-2. THE CHARACTERISTIC FEATURES OF GROWTH OF AUTOEPITAXIAL SILICON LAYERS IN A DEVICE WITH A HORIZONTALLY ARRANGED REACTOR

[Article by Yu. I. Boytnov, V. P. Gaydavenko, V. M. Karancv, T. S. Kondrat'-yeva, N. A. Belov, Leningrad; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 11-17 June 1972, p 155]

A study was made of the effect of the growth conditions on the electro-
physical parameters (the thickness and specific resistance) of autoepitaxial
layers of silicon. In order to measure the thickness and specific resistance,
the infrared method and the method of spreading resistance were used. It was
demonstrated that the autoepitaxial layers grown in the device with a hori-
zontally arranged reaction chamber have specific characteristics of distribution
of the thickness and specific resistance. Recommendations are made with re-
spect to the application of the technological procedures and measurements for
growing epitaxial layers which are uniform with respect to thickness and
specific resistance.

BELOV, N.A.

BELOV, N.A.

XIV-13. STUDY OF THE CHARACTERISTIC FEATURES OF CRYSTALLIZATION OF MICRODROPS OF THE MELT ON THE SURFACE OF AUTOEPITAXIAL SILICON LAYERS

[Article by N. N. Erikh, N. A. Belov, T. S. Kondrat'yeva, Yu. A. Shelamankevich, Leningrad; Novosibirsk. III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 251]

Data are presented from a statistical analysis of the frequency of encountering growth defects caused by crystallization of microdrops of the melt on the surface of autoepitaxial silicon layers obtained by the method of reduction of the silicon tetrachloride by hydrogen. The growth conditions of the autoepitaxial layers promoting the formation of microdrops of the melt were simulated. Silicon plates alloyed with iron and gold containing contamination by metal, graphite, dust, and traces of washing solutions on the surface were used as substrate in the experiments. It was demonstrated that the formation of microdrops of the melt is favored by the presence of such admixtures as iron, gold, hydrogen, oxygen, antimony and others, the sources of which can be the crystal itself (above all, the contamination of the growth surface) and the crystallization medium. The movement of the microdrops of the melt with respect to the morphological characteristics of the defects formed corresponds to the directions of predominant growth <111> and buildup of the stages <110>. It was noted that the crystallization of microdrops of the melt can be accompanied by the getter effect of the admixtures from the surrounding regions of the crystal and can serve as a cause of the formation of growth defects of the following type: plateau-like elevations, faceted whiskers, tongues, growth hills of pyramidal appearance, and complex twins -- triyramids. According the morphological characteristics of the relief connected with the presence of the liquid phase on the growth surface of the crystal and on its back side -- the sandwich layer -- permit judgment of the conditions of the growth process of the autoepitaxial silicon layers. In this paper the possible mechanism of crystallizing microdrops of the melt are discussed, and the different technological methods of lowering the probability of their occurrence are proposed.

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TPKS 5968
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SESSION XV

XV-1. HARDNESS OF AUTOEPITAXIAL SILICON LAYERS

[Article by L. S. Komdrat'yeva, N. A. Belov, R. N. Erlikh, L. K. Melikyan, N. Guseva, Leningrad, Novosibirsk, III Simpozium po Protsessam Rosta i Sin-tezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 212]

This paper is devoted to the study of the hardness of silicon crystals used as substrates and autoepitaxial layers grown by the method of reducing silicon tetrachloride by hydrogen.

Experimental data are presented on the hardness of crystals as a function of the mechanical, chemical and electrochemical processing and with respect to the effect of different types of treatment on the mechanical properties of the autoepitaxial layer. It is demonstrated that the anisotropy of the hardness of the crystals and the autoepitaxial layers of silicon has an analogous nature -- the magnitude of the hardness (H_μ) decreases on going from the (111) facets to the (110) ones. The magnitude of H_μ is defined as a function of the concentration of the alloying mixture in the layers. The data obtained were checked by calculating the Kolmogorov criterion on the Minsk-22 computer by the N. M. Olin procedure. The statistical analysis indicates a decrease in hardness with an increase in the phosphorous concentration in the layers.

The variation in hardness with respect to depth of the layers was observed which is caused by the effect of the substrate properties; the type and concentration of the alloying admixture, the type of surface machining.

In this paper it is demonstrated that the magnitude of the hardness is a parameter which permits estimation of the perfection of the autoepitaxial layers reflecting the interrelation of the autoepitaxial properties with the crystallization conditions.

USSR

UDC 621.315.592.546.28

BELOV, N. A., ERLIKH, R. N., KAZANOV, V. M., and KONDRAT'YEVA, T. S.

"Properties of Autoepitaxial Silicon Layers"

Elektron. prom-st'. Nauchno-tekhn sb (Electronic Industry--scientific and technical collection of works), 1970, No 1, 99-100 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G388)

Translation: The layers were grown by the method of hydrogen reduction of $SiCl_4$ in a unit with vertically and horizontally distributed radiation chambers. Under the conditions of decreasing temperature in the process of growing (down to $\sim 1170^{\circ}$), autoepitexial layers were obtained with good reproducibility of results and a mirror-smooth surface (density of growth figures and packing defects ≤ 10 cm^{-2}), and the width of the concentration transition sublayer-autoepitexial layer was reduced to 2-3 μ. During growth under constant low temperature conditions, the production of layers with perfect structure was hindered owing to the necessity of rigid stability of the parameters of the process.

(From RZh A i R)

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